UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,999	09/30/2003	Jessica L. Voss-Kehl	58227US002	5245

32692 7590 08/29/2006

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER	
PENG, KUO LIANG	

ART UNIT	PAPER NUMBER
1712	

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/674,999	VOSS-KEHL ET AL.	
	Examiner	Art Unit	
	Kuo-Liang Peng	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/14/06 Response*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 8-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 8-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Applicants' response filed on August 14, 2006 is acknowledged. Claims 6-7 and 27-59 are deleted. Now, Claims 1-5 and 8-26 are pending.

2. Claim rejection(s) under 35 USC 112 in the previous Office Action (Paper No. 061006) is/are removed.

3. The instant Office action is made non-final because of the new ground of rejection set forth below.

4. The text of those sections of Title 35, U.S. code not included in this action can be found in prior Office Action(s).

Claim Rejections - 35 USC § 103

5. Claims 1-5, 9-19, 22 and 26 are rejected under 35 USC 103(a) as being unpatentable over Matsuda (US 6 586 104) in view of Iryo (US 5 789 476).

For Claims 1-5, 9-15, 18-19, 22 and 26, Matsuda discloses a coating composition as described in the previous Office action (Paper No. 122405),

which is incorporated herein by reference. As mentioned in Paper No. 072005 (page 2), Matsuda's polymer has a molecular weight range (col. 5, lines 50-60) **substantially overlap** with that of Applicants' polymer (Specification, page 16, last paragraph). The **amounts** of the particles of the inorganic compound and the silsesquioxane polymer are described in col. 6, lines 12-18. As such, Matsuda's composition is substantially the same as that of Applicants. Therefore, Matsuda's composition and that of Applicants' should have the same viscosities.

The difference between Matsuda and the present invention is the specific surface modifier of the nanoparticles set forth in the instant claims. However, Iryo teaches the use of silane compounds such as methyltrimethoxysilane, etc. for modifying nanoparticles such as oxides of titanium, silicon, zirconium, etc in a coating composition. The motivation of the modification of the nanoparticles is to improve the stability/dispersity of the nanoparticles in the coating composition. (col. 3, lines 14 to col. 4, line 11, col. 6, lines 27-67 and Examples) In light of the benefit mentioned, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Mastsuda's nanoparticles according to Iryo's method. For Claims 16-17, note that as mentioned previously, the composition does contain methyltrialkoxysilane, etc.

6. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda in view of Chandross (US 6 251 486).

Matsuda discloses a coating composition, supra, which is incorporated herein by reference. The difference between Matsuda and the present invention is the specific flexibilizer set forth in the instant claims. However, Chandross teaches the use of dialkyldialkoxysilane such as dimethyldiethoxysilane, etc. in a composition comprising polymethylsilsesquioxane. The motivation is to afford a material with enhanced properties because it can function as plasticizer segments. (Abstract, col. 2, lines 23-45, line 63 to col. 3, line 7 and col. 4, lines 1-18) In light of the benefit mentioned, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize Chandross' dialkyldialkoxysilanes in Matsuda's composition.

7. Claims 1-5, 8, 10-15, 18-19 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 6 586 104) in view of Atkinson (US 4 909 852).

For Claims 1-5, 8, 10-15, 18-19, 22 and 25, Matsuda discloses a coating compositio weight range (col. 5, lines 50-60) **substantially overlap** with that of Applicants' polymer (Specification , page 16, last paragraph). The **amounts** of the particles of the inorganic compound and the silsesquioxane polymer are described in col. 6, lines 12-18. As such, Matsuda's composition is substantially the same as that of Applicants. Therefore, Matsuda's composition and that of Applicants' should have the same viscosities.

The difference between Matsuda and the present invention is the specific surface modifier of the nanoparticles set forth in the instant claims. However, Atkinson teaches the use of a carboxylic acid with carbon number less than 8 or derivatives thereof for treating titanium oxide particles for using in a silicone resin coating composition. Note that the small range of the carbon number less than 8 renders obvious of hexanoic acid. The motivation of using the carboxylic acid/derivatives is to enhance the dispersity of the particles in the coating composition. (col. 5, line 12 to col. 7, line 24 and Examples) In light of the benefit mentioned, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize Atkinson's carboxylic acid/derivatives to modify Matsuda's particles. For Claims 23-24, note that Mastuda in view of Atkinson's composition does contain organic acids.

8. Claims 16-18 (when the specific additive in Claim 18 is present) are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda in view of Rotenberg (US 4 173 490).

Matsuda discloses a coating composition, supra, which is incorporated herein by reference. The difference between Matsuda and the present invention is the requirement of the specific additive set forth in the instant claims. However, Rotenberg teaches that a coating composition comprising a tetraalkoxysilane and alkyltrialkoxysilane is useful for providing abrasion coatings for plastics. The motivation of using a composition comprising these components is to increase the abrasion resistance of plastics. (Abstract, col. 1, lines 18-61 and Examples) In light of the benefit mentioned, it would have been obvious to one of ordinary skill in the art at the time of the invention was made incorporate these silanes into Matsuda's composition. Especially, Matsuda teaches the coating of a liquid crystal display (col. 2, lines 31-39) that is typically a plastic substrate.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (571) 272-1091. The examiner can normally be

reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

klp
August 25, 2006

Kuo-Liang Peng
Primary Examiner
Art Unit 1712